Drinking Water
Incident Management

Presentation to Engineers Ireland
Clyde Road, January 2008

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Structure of Presentation

1. Background & Scope
2. International Experience
3. Irish Experience
5. Importance of Communications
6. Support Material
Background & Scope
Background

**Existing Arrangements**
- Circular L13/02 - *Action Plan* for the Protection of Drinking Water Supplies
  - Preventative Action Measures
  - Responding to Incidents

**Proposed Arrangements**
- Preventative Measures
  - Water Safety Plan
  - Scheme Level
- **Responding to Incidents**
  - Drinking Water Incident Response Plan (DWIRP)
  - Water Services Authority level (WSA)
Water Safety Plans

- Preventative measures (on a scheme by scheme level)

- WHO Guidelines for drinking-water quality” 3rd Edition in 2004

Scope of Project

• All aspects of the drinking water system including sources, treatment and distribution to the consumer's draw off point

• The system should take account of international best practice

• “The drinking water supply is vulnerable to contamination – whether accidental or deliberate – or to interruption, due to failure of the distribution network or a treatment process”

• “Water suppliers” includes both water services authorities and the group water scheme sector
Role of the EPA / HSE

- Supervisory role for the EPA for public water supplies
- Specific website for cryptosporidium, 4 sub-groups established

- WSA to consult with HSE in determining if a drinking water supply constitutes a potential danger to human health (Regulation 9) and if so
- The actions by the WSA to restrict supply and inform consumers are subject to agreement with the HSE,
- The issue of a direction under Regulation 9(2) is subject to agreement with the HSE
Role of the EPA / HSE

- Medical Officer of Health: previously a local authority appointment (now HSE, reporting to the Assistant Director for Health Protection). Generally the MoH’s decision to implement a boil notice, if required
- Current liaison arrangements: Water Quality Liaison groups / Incident Response Teams (IRT)
Cryptosporidium Sub-Group 4 - Incident Management

Chair – Paul McKeown (HPSC)

- To devise procedures for managing an outbreak
- Advice on establishing source of outbreak
- Advice on boil water notices
- Advice on incident and pre-incident response groups
- Advice on communications
- Advice to commercial premises and industry in the event of an outbreak
Framework for **Emergency Planning**

- Common language and terminology

- Methodologies used in the Framework for Emergency Planning, in particular the accompanying Guidance Document on risk assessment

- Arrangements to be put in place by each local authority to implement the new Framework for Emergency Planning

- Drinking water incidents may escalate to a Major Emergency
International Experience - Case Studies

Milwaukee, 1993

- Cryptosporidium
- Two weeks before boil notice was issued
- 403,000 people sick
- Probably in excess of 100 related fatalities
Burncrooks, 1997

- Diesel contamination at treatment works
- 66,000 customers affected
- 341km of mains contaminated
- 8 days to lift restrictions
International Experience - Case Studies

Walkerton, 2000

- E coli 0157:H7 and Campylobacter
- Half of the town’s 4800 residents ill
- 7 deaths
- 1 year jail sentence for public utilities manager
International Experience - Case Studies

Gloucestershire, 2007

- Flooding
- Inundation of water treatment works
- Loss of supply to 140,000 households
Irish Experience
Roscommon, February 2006

- Diesel Incident – spill at quarry
- Loss of source for 2 months
- 8,000 people lost supply for 3-5 days
- 1,700m of temporary pumped main
Galway, 2007

- Cryptosporidium Incident
- 90,000+ customers affected
- Two local authority areas involved
- >140 confirmed cases of cryptosporidiosis
- Unprecedented level of media interest
- Difficulty in lifting Boil Notice
Irish Experience - Case Studies

Cavan/Monaghan, April 2007

- Coagulant-aid contamination
- Taste problems at 5 Group Schemes
- Phenol contamination identified
- ‘Do not Drink or Cook’ restriction
- Provision of temporary supplies
Learning the Lessons

- Review of previous incident reports and recommendations
  - If it has never happened before you may get some sympathy
  - If it has never happened before in Ireland you may get some criticism
  - If it has happened before in Ireland you will get severe criticism if you have not addressed the issues
  - If it has happened to you before and you have not addressed the issues ???
Proposed New Approach (DWIRP)
Terminology

- **Drinking Water Incident Management (DWIM)** [previously Emergency Management System (EMS) for Drinking Water Supplies]
  - To describe the range of procedures and processes deployed to manage a water supply incident
- ‘**Incident**’ rather than ‘**emergency**’
- **Drinking Water Incident Response Plan (DWIRP)**
  - A plan prepared by a Water Services Authority to document the procedures, processes and information to support the management of a Drinking Water Incident.
Roles and Responsibilities

County/City Manager
- overall responsibility for preparation of the Plan and the allocation of resources to implement the Plan

Director of Services
- responsible for ensuring that the Plan is maintained
- responsible for the decision to escalate an incident such that activation of the Plan is required (in consultation with the HSE if so required)

Drinking Water Incident Response Plan Manager
- Preparation of the Drinking Water Incident Response Plan
- Maintenance of the Drinking Water Incident Response Plan
- Coordination of resources required to implement the plan
- Training personnel within the Water Services Authority
- Testing of the Plan
Risk Assessment

- Risk Assessment carried out by DWIRP Manager, prior to preparing the Plan (details then recorded in the Plan)
- First step is to define a list of hazards for the WSA, and to assess Likelihood and Impact
- Develop a Risk Matrix, four zones are identified
- This should guide measures to be included in the Plan
Risk Zones

• **Zone 1** - Prevention or Mitigation
  - Operations - Operations Plan
  - Source Protection
    - Local Source Protection Plan
    - River Basin Management Plans
  - Assets - Asset Management Plans

• **Zone 2** - Planning & Preparedness
  - Drinking Water Incident Response Plan

• **Zone 3** - Extendibility Zone
  - Hazards are extremely/very unlikely and do not therefore warrant specific preparedness

• **Zone 4** - Negligible risk
  - managed by routine procedures
## Risk Zones

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<th>Likelihood</th>
<th>Impact/Consequence</th>
<th>Insignificant</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Catastrophic</th>
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<td>A (almost certain)</td>
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<td>M</td>
<td>M</td>
<td>H</td>
<td>V</td>
<td>V</td>
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<tr>
<td>B (likely)</td>
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<td>M</td>
<td>M</td>
<td>H</td>
<td>V</td>
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<tr>
<td>C (moderate)</td>
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<td>H</td>
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<td>D (unlikely)</td>
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<tr>
<td>E (rare)</td>
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<td>L</td>
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</table>

- Prevent or Mitigate
- Planning & Preparedness
- Extendibility Zone
- Negligible Risk, Manage by routine procedures separate from Drinking Water Incident Response Plan
Classification of an Incident

- Not all water supply ‘problems require activation of the Plan

- Consider the potential impact (full extent to which an incident might escalate)

- Responsibility of Director of Services, use Incident Classification Table

  **Amber (medium severity)**

  Incident will be managed and controlled at a local level by an Incident Controller, appointed by the Director of Services.

  **Red (high severity)**

  Requires the set up of a Red (Strategic) Team to deal with the strategic, policy and resourcing issues. Red incidents will require the appointment of an Incident Manager by the Director of Services.
Activating the DWIRP

- DWIRP is a management tool
- Can be activated for potential incidents, eg. to prevent situations leading to loss of supply
- Thresholds in Incident Classification Table must be used to activate the Plan, but these thresholds are set locally to suit the WSA
- Don’t be afraid to activate the Plan, it is designed to help co-ordinate resources, and can be used on many levels
Importance of Communications
Communications

**Initial**

**Internal**

**External/ media**

- Leaflets
- Radio
- Printed media
- Website
- Call centres
- Sensitive customers
- Aertel
Initial Communication of the Incident
Communications

• Effective communications both internally and externally is fundamental to the successful management of any incident.
• Every post incident review highlights communications as a key issue.
• A robust communications strategy is required.
• The time and resources necessary to plan and deliver effective communications should not be underestimated.
Support Material
Support Material

1. Template

2. Guidance Document
   - Drinking Water Incident Response Plan (DWIRP)

3. Research CD
   - Water Services National Training Group
   - Drinking Water Incident Management
   - Guidance on Preparing & Implementing a Drinking Water Incident Response Plan

4. Training Courses

[Logos and images for TOBIN and mouchel]
Structure of the Template Plan (1)

1. Policy Statement
2. Using this Document
3. Roles and Responsibilities in this Plan
4. Risk Assessment
5. Classification of an Incident
6. Incident Response Teams
7. Supporting Procedures
Structure of the Template Plan (2)

8. Communications

9. Site and Event Specific Arrangements and Plans

10. Preparation of the Incident Report

11. Training and Rehearsal

12. Review of the Incident Plan

Appendices: A - D
Guidance Document

What is its purpose?

A. To assist in setting up the Drinking Water Incident Response Plan (prompts, guidance)

B. To act as a useful reference document for incident management generally (case studies, legislative framework etc.)
Proposed Training Programme

Who should attend?

- Drinking Water Incident Response Plan Manager
  - likely to be middle to senior management level in each local authority
  - Not necessarily technical, but with a good knowledge of the water services department

- Deputy / Acting ‘DWIRP Manager’
  - to ensure continuity, as staff changes can lead to problems

- Environmental Health Officers
Proposed Training Programme

Provisional Dates

Roscrea – 21st/22nd February 2007

Castlebar – 12th/13th March 2007

Ballycoolen – 8th/9th April 2007

Ballincollig – 22nd/23rd April 2007

Stranorlar – start of May 2007 (to be arranged)
Thank you for your attention